

Appendix Table 5-43
S&E articles in astronomy, by coauthorship attribute and selected region/country/economy: 2000–13

Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
World														
Total articles	8,996	9,911	10,578	11,127	12,070	14,123	15,944	13,828	12,700	12,568	12,295	14,494	15,029	13,718
with multiple institutions	5,711	5,375	5,761	7,559	8,364	9,619	10,796	9,682	8,936	8,938	9,245	10,670	10,854	10,458
with domestic institutions only	5,315	6,455	6,814	6,158	6,567	7,728	8,896	7,190	6,700	6,496	5,812	7,216	7,583	6,493
with international institutions	3,681	3,456	3,764	4,969	5,503	6,395	7,048	6,638	6,000	6,072	6,483	7,278	7,446	7,225
Canada														
Total articles	408	360	383	504	541	626	741	719	701	702	971	930	967	947
with multiple institutions	321	287	308	423	456	503	610	633	603	622	887	836	851	850
with domestic institutions only	111	96	100	121	126	156	165	117	132	110	117	137	150	132
with international institutions	297	264	283	383	415	470	576	602	569	592	854	793	817	815
Mexico														
Total articles	208	239	238	305	248	289	291	393	295	307	288	468	289	304
with multiple institutions	166	178	181	236	214	244	249	336	253	267	244	368	249	269
with domestic institutions only	52	80	79	104	54	82	76	107	78	69	64	146	60	52
with international institutions	156	159	159	201	194	207	215	286	217	238	224	322	229	252
United States														
Total articles	3,848	4,083	4,200	4,796	5,272	5,619	6,356	5,927	5,103	5,260	5,550	5,920	6,280	5,970

Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
with multiple institutions	3,026	3,048	3,181	3,857	4,337	4,553	5,164	4,844	4,302	4,463	4,815	5,121	5,369	5,250
with domestic institutions only	1,758	2,048	1,971	2,092	2,181	2,334	2,662	2,243	1,903	1,897	1,812	1,922	2,021	1,783
with international institutions	2,090	2,035	2,229	2,704	3,091	3,285	3,694	3,684	3,200	3,363	3,738	3,998	4,259	4,187
Argentina														
Total articles	91	120	138	128	141	162	171	155	182	171	179	252	168	175
with multiple institutions	75	90	98	111	123	134	162	135	173	147	168	221	159	163
with domestic institutions only	33	42	59	35	45	43	46	44	44	44	40	77	34	36
with international institutions	58	78	79	93	96	119	125	111	138	127	139	175	134	139
Brazil														
Total articles	184	160	188	202	217	269	349	249	266	300	276	348	331	346
with multiple institutions	145	117	129	159	152	213	281	201	208	255	233	297	273	308
with domestic institutions only	56	55	69	65	86	102	120	78	92	92	72	102	112	71
with international institutions	128	105	119	137	131	167	229	171	174	208	204	246	219	275
Chile														
Total articles	172	229	238	324	329	420	556	492	494	495	565	656	646	759
with multiple institutions	164	208	215	315	319	407	527	476	465	471	552	637	627	746
with domestic institutions only	12	24	25	13	14	17	39	17	32	29	19	30	25	32
with international institutions	160	205	213	311	315	403	517	475	462	466	546	626	621	727
Austria														
Total articles	97	89	154	145	163	242	210	177	201	204	286	260	274	262

Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
with multiple institutions	81	69	122	125	136	199	187	166	180	176	270	239	257	251
with domestic institutions only	20	23	44	25	33	53	28	13	22	31	18	30	18	17
with international institutions	77	66	110	120	130	189	182	164	179	173	268	230	256	245
Belgium														
Total articles	124	127	172	219	254	338	341	309	295	311	434	412	443	439
with multiple institutions	98	72	96	179	203	271	279	265	248	262	402	382	409	401
with domestic institutions only	44	62	80	53	63	83	75	59	65	54	40	44	51	51
with international institutions	80	65	92	166	191	255	266	250	230	257	394	368	392	388
Czech Republic														
Total articles	56	78	110	100	105	156	233	140	161	150	178	222	288	207
with multiple institutions	35	41	70	72	87	120	171	116	124	125	163	180	190	168
with domestic institutions only	26	39	42	33	22	56	83	31	51	39	34	69	139	74
with international institutions	30	39	68	67	83	100	150	109	110	111	144	153	149	133
Denmark														
Total articles	131	93	110	166	178	180	221	156	139	146	221	295	272	282
with multiple institutions	109	75	81	145	162	163	191	142	124	137	211	281	248	268
with domestic institutions only	22	20	34	27	22	19	33	18	21	11	10	18	29	17
with international institutions	109	73	76	139	156	161	188	138	118	135	211	277	243	265
Finland														
Total articles	102	98	128	114	145	198	226	181	160	174	157	203	212	199

Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
with multiple institutions	89	65	83	101	127	174	193	168	151	159	148	191	195	189
with domestic institutions only	24	38	49	19	22	37	46	22	20	27	15	18	27	17
with international institutions	78	60	79	95	123	161	180	159	140	147	142	185	185	182
France														
Total articles	943	1,008	1,099	1,298	1,604	1,925	2,203	1,782	1,658	1,710	2,089	1,989	2,103	1,980
with multiple institutions	704	612	747	1,063	1,354	1,617	1,796	1,544	1,403	1,521	1,889	1,827	1,889	1,825
with domestic institutions only	322	472	452	387	423	515	689	377	424	344	327	311	382	311
with international institutions	621	536	647	911	1,181	1,410	1,514	1,405	1,234	1,366	1,762	1,678	1,721	1,669
Germany														
Total articles	1,324	1,359	1,460	1,783	2,065	2,623	2,647	2,539	2,385	2,340	2,604	2,913	3,126	2,825
with multiple institutions	1,028	900	989	1,463	1,666	2,133	2,177	2,126	1,956	2,020	2,343	2,636	2,765	2,608
with domestic institutions only	372	514	543	458	555	669	622	558	595	440	386	432	585	359
with international institutions	952	845	917	1,325	1,510	1,954	2,025	1,981	1,790	1,900	2,218	2,481	2,541	2,466
Greece														
Total articles	79	88	110	98	122	144	211	123	102	158	159	155	171	157
with multiple institutions	60	64	77	72	105	111	169	101	78	132	143	135	139	131
with domestic institutions only	28	32	46	36	31	49	73	34	39	44	22	32	43	34
with international institutions	51	56	64	62	91	95	138	89	63	114	137	123	128	123
Hungary														
Total articles	75	54	85	87	97	85	96	120	100	100	110	122	131	140

Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
with multiple institutions	66	43	63	77	81	76	72	105	87	88	101	115	120	129
with domestic institutions only	14	14	26	15	24	13	31	31	21	22	11	15	20	26
with international institutions	61	40	59	72	73	72	65	89	79	78	99	107	111	114
Ireland														
Total articles	48	26	42	56	80	120	96	99	101	113	149	176	138	119
with multiple institutions	37	15	33	45	68	97	85	91	93	103	138	164	129	112
with domestic institutions only	11	11	10	11	14	30	15	11	9	13	12	17	14	9
with international institutions	37	15	32	45	66	90	81	88	92	100	137	159	124	110
Italy														
Total articles	880	979	1,008	1,219	1,367	1,634	1,861	1,771	1,451	1,646	1,774	1,946	1,867	1,755
with multiple institutions	737	690	728	1,072	1,199	1,441	1,569	1,555	1,274	1,409	1,612	1,688	1,623	1,569
with domestic institutions only	280	409	424	358	421	447	609	477	392	429	345	497	439	382
with international institutions	600	570	584	861	946	1,187	1,252	1,294	1,059	1,217	1,429	1,449	1,428	1,373
Netherlands														
Total articles	511	464	557	706	827	905	983	810	727	712	887	866	1,008	906
with multiple institutions	428	336	390	603	703	778	861	745	625	646	846	805	939	844
with domestic institutions only	105	135	188	132	173	175	160	110	129	85	64	78	104	81
with international institutions	406	329	369	574	654	730	823	700	598	627	823	788	904	825
Poland														
Total articles	199	227	250	274	287	319	329	328	295	333	368	446	398	365

Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
with multiple institutions	118	141	145	208	241	254	265	274	246	278	329	395	341	324
with domestic institutions only	91	98	119	81	65	89	77	69	68	70	57	76	81	56
with international institutions	108	129	131	193	222	230	252	259	227	263	311	370	317	309
Portugal														
Total articles	51	46	45	87	98	113	193	129	147	127	160	157	225	171
with multiple institutions	45	33	32	81	91	108	155	121	126	118	157	150	201	165
with domestic institutions only	10	15	15	11	12	10	59	16	38	19	7	15	35	15
with international institutions	41	31	30	76	86	103	134	113	109	108	153	142	190	156
Romania														
Total articles	13	11	21	20	32	43	35	50	30	44	41	62	43	46
with multiple institutions	12	10	12	18	29	41	30	47	21	37	36	52	34	41
with domestic institutions only	1	2	9	4	6	5	8	3	10	7	9	14	11	11
with international institutions	12	9	12	16	26	38	27	47	20	37	32	48	32	35
Spain														
Total articles	441	561	587	768	778	977	1,176	1,070	942	996	1,372	1,315	1,409	1,317
with multiple institutions	376	402	455	653	696	835	997	938	834	884	1,298	1,241	1,301	1,248
with domestic institutions only	108	199	178	183	145	231	284	199	185	171	161	153	224	157
with international institutions	333	362	409	585	633	746	892	871	757	825	1,211	1,162	1,185	1,160
Sweden														
Total articles	154	153	161	180	215	291	345	262	247	249	441	358	373	322

Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
with multiple institutions	126	99	116	145	189	240	284	226	209	231	410	326	338	296
with domestic institutions only	34	58	50	44	33	57	78	47	45	25	56	45	47	37
with international institutions	120	95	111	136	182	234	267	215	202	224	385	313	326	285
United Kingdom														
Total articles	1,205	1,274	1,438	1,789	1,931	2,105	2,591	2,221	1,984	2,056	2,362	2,493	2,539	2,476
with multiple institutions	952	922	1,086	1,434	1,571	1,711	2,056	1,817	1,686	1,741	2,077	2,171	2,240	2,251
with domestic institutions only	334	426	452	465	499	527	703	536	415	410	371	443	406	315
with international institutions	871	848	986	1,324	1,432	1,578	1,888	1,685	1,569	1,646	1,991	2,050	2,133	2,161
Norway														
Total articles	49	41	37	71	79	118	90	114	62	70	53	115	67	95
with multiple institutions	40	30	28	62	77	92	77	95	54	64	51	104	60	83
with domestic institutions only	13	13	11	13	7	38	18	25	13	14	4	18	10	19
with international institutions	36	28	26	58	72	80	72	89	49	56	49	97	57	76
Russia														
Total articles	703	749	838	767	759	1,015	914	902	753	897	684	1,080	827	882
with multiple institutions	416	376	410	541	526	713	657	634	552	593	472	742	583	645
with domestic institutions only	338	424	492	318	320	436	371	366	287	422	309	490	359	393
with international institutions	365	325	346	449	439	579	543	536	466	475	375	590	468	489
Switzerland														
Total articles	156	165	212	313	432	520	505	496	376	457	537	541	544	499

Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
with multiple institutions	127	100	129	273	384	452	441	454	328	419	518	502	495	465
with domestic institutions only	36	66	91	55	58	85	77	58	57	50	26	47	58	49
with international institutions	120	99	121	258	374	435	428	438	319	407	511	494	486	450
Iran														
Total articles	8	10	14	20	22	20	34	31	33	40	54	95	129	130
with multiple institutions	6	4	10	16	17	15	26	24	20	30	38	70	89	86
with domestic institutions only	5	8	10	11	10	12	25	19	22	26	32	56	85	80
with international institutions	3	2	4	9	12	8	9	12	11	14	22	39	44	50
Israel														
Total articles	111	119	132	146	152	156	176	160	175	160	174	222	278	253
with multiple institutions	90	90	96	120	115	123	138	124	129	122	135	180	221	222
with domestic institutions only	23	30	42	34	49	40	52	41	53	47	44	49	68	39
with international institutions	88	89	90	112	103	116	124	119	122	113	130	173	210	214
Saudi Arabia														
Total articles	4	3	4	14	6	2	1	2	2	5	7	39	64	69
with multiple institutions	4	1	1	8	5	1	1	1	1	5	5	37	60	67
with domestic institutions only		2	3	7	2	2	0	2	1	0	2	3	6	5
with international institutions	4	1	1	7	4	0	1	0	1	5	5	36	58	64
Turkey														
Total articles	19	30	29	48	52	65	111	72	66	65	75	89	114	118

Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
with multiple institutions	14	21	15	38	42	40	88	52	38	50	59	68	85	84
with domestic institutions only	8	12	16	16	21	34	53	26	39	26	27	40	46	47
with international institutions	11	18	13	32	31	31	58	46	27	39	48	49	68	71
Egypt														
Total articles	10	8	11	17	17	21	28	22	17	21	55	56	66	75
with multiple institutions	7	4	6	7	10	15	18	13	7	15	32	37	48	44
with domestic institutions only	3	4	8	12	9	9	11	9	12	8	40	35	32	49
with international institutions	7	4	3	5	8	12	17	13	5	13	15	21	34	26
South Africa														
Total articles	80	73	74	101	95	127	137	159	128	138	168	211	255	309
with multiple institutions	67	51	55	79	79	107	120	142	106	123	144	193	238	287
with domestic institutions only	19	25	21	26	24	27	24	27	30	25	33	26	30	27
with international institutions	61	48	53	75	71	100	113	132	98	113	135	185	225	282
China														
Total articles	291	313	372	353	426	565	750	847	798	831	884	1,021	1,234	1,261
with multiple institutions	218	219	225	255	316	425	578	617	605	644	764	821	987	1,041
with domestic institutions only	171	191	232	177	213	277	405	480	408	436	394	530	632	630
with international institutions	120	122	140	176	213	288	345	367	390	395	490	491	602	631
India														
Total articles	240	239	237	249	233	363	402	310	368	369	400	536	525	548

Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
with multiple institutions	144	150	116	166	171	240	275	239	268	267	295	373	386	435
with domestic institutions only	132	136	151	120	100	220	208	144	186	187	192	302	264	254
with international institutions	108	103	86	129	133	143	194	166	182	182	208	234	261	294
Japan														
Total articles	851	673	719	720	834	936	998	1,046	931	1,004	855	1,116	1,056	982
with multiple institutions	624	478	487	585	662	766	790	885	795	858	775	981	921	883
with domestic institutions only	481	354	375	328	396	438	464	431	366	394	256	412	342	313
with international institutions	370	319	344	392	438	498	534	615	565	610	599	704	714	669
Malaysia														
Total articles	0	0	0	0	2	0	4	2	2	5	10	4	6	14
with multiple institutions	0	0	0	0	2	0	2	2	2	0	7	4	3	11
with domestic institutions only	0	0	0	0	0	0	2	1	0	5	3	1	3	3
with international institutions	0	0	0	0	2	0	2	1	2	0	7	3	3	11
Singapore														
Total articles	2	0	0	3	4	0	11	3	2	7	4	4	4	4
with multiple institutions	2	0	0	3	4	0	9	2	2	7	4	4	4	4
with domestic institutions only	0	0	0	0	1	0	3	1	0	1	0	0	1	0
with international institutions	2	0	0	3	3	0	8	2	2	6	4	4	3	4
South Korea														
Total articles	62	75	75	82	123	168	176	254	209	252	307	347	388	381



Region/country/economy and coauthorship attribute	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
with multiple institutions	49	57	61	77	108	150	144	216	187	205	271	304	343	330
with domestic institutions only	20	27	25	18	24	31	54	58	50	70	77	101	113	111
with international institutions	42	48	50	64	99	137	122	196	159	182	230	246	275	270
Taiwan														
Total articles	39	47	54	62	79	70	110	156	142	143	191	223	255	251
with multiple institutions	33	42	44	57	68	62	104	150	130	138	184	208	240	238
with domestic institutions only	8	10	18	13	17	12	19	20	25	21	18	33	30	22
with international institutions	31	37	36	49	62	58	91	136	117	122	173	190	225	229
Australia														
Total articles	317	373	352	398	523	550	639	581	586	608	679	857	991	993
with multiple institutions	272	305	305	329	432	476	545	498	513	545	614	778	891	916
with domestic institutions only	61	87	60	92	121	109	141	118	104	92	111	122	163	129
with international institutions	256	286	292	306	402	441	498	463	482	516	568	735	828	864
New Zealand														
Total articles	32	21	36	31	47	44	36	32	35	40	42	54	74	88
with multiple institutions	19	10	22	29	41	39	29	28	27	35	36	47	62	81
with domestic institutions only	15	11	16	4	8	7	7	4	8	5	7	7	14	8
with international institutions	17	10	20	27	39	37	29	28	27	35	35	47	60	80

NOTES: Article counts refer to publications from a selection of journals, books, and conference proceedings in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region/country/economy on the basis of the institutional address(es) listed in the article. Articles are credited on a whole-count basis (i.e., each collaborating country/economy is credited with one count). Countries/economies with less than 1% of internationally



coauthored articles in 2013 are omitted. Articles with multiple institutions are counts of articles with two or more institutional addresses. Articles with domestic institutions only are counts of articles with one or more institutional addresses all within a single country/economy. Articles with international institutions are counts of articles with institutional addresses from more than one country/economy.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics; SRI International; Science-Metrix; Elsevier, Scopus abstract and citation database (www.scopus.com).

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